

Multivariate Analysis of the Complex Emergency Operation

by
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Introduction

At the beginning of the 21st century, the International Community was dominated by the democratization of information, technologies and finances.¹ Security threats to contemporary society are not only military, but also political, cultural, environmental, economic, demographic and others. Because of these threats, complex emergency operations are dynamic non-linear processes in which the International Community, with the help of military forces, rebuilds fundamental societal values and norms. The definition of a complex emergency operation (CEO) used in this article is “an operation to address a humanitarian crisis in a country, region or society where there is total or considerable breakdown of authority resulting from internal or external conflict and which requires an international response that goes beyond the mandate or capacity of any single agency and/or the ongoing United Nations (UN) country program.”²

The term CEO encompasses peacemaking, peacekeeping, societal reconstruction, disaster relief operations and their combinations. Such complex emergencies are typically characterized by extensive violence and loss of life; massive displacements of people; widespread damage to societies and economies; the need for large-scale humanitarian assistance; the hindrance or prevention of humanitarian assistance by political and military constraints; and significant security risks for humanitarian relief workers. The basic requirements of CEOs are a strengthened military capacity, the need for coordination between different organizations and the creation and maintenance of a safe and secure environment by military forces to allow humanitarian help and societal rebuilding of the affected area. Despite non-linearity, each CEO has a development cycle with specific phases: a) identifying root causes of conflict; b) decision making process for intervention; c) planning and execution; and, d) assessment of the CEO in the area of operation.³ Assessment of CEOs has been conducted



Figure 1. Theoretical Systemic Model of Complex Emergency Operation (CEO)

via observation and systemic analysis of the effects on essential societal security dimensions of the affected society. A systemic approach enables common understanding of the situation and operational planning in line with the needs of local authorities and population.

Potential of Societal Security Dimensions

A systemic approach towards a complex emergency situation has enabled the International Community to recognise the crisis area, gain an understanding of root causes and implement the decision-making process for intervention and planning for execution of operation, in a timely manner. Wherever CEOs are employed, the International Community's efforts are affected by many internal and external influences. Those intervenes include local politics, media, population demands, different international organizations (IOs), and non-governmental organizations (NGOs), just to mention a few. Right or wrong, the International Community is sometimes blamed for its failure to create a stable and secure environment. Examples like Kosovo in the Balkans and more recently, Afghanistan and Iraq, indicate that despite all efforts by the International Community, a permanent solution to conflict situations has not yet been achieved. Rebuilding societies is one of the most complex and important challenges the International Community faces today. It is absolutely critical to identify a proper methodology for the achievement of the desired end-state of a return to normality in a more efficient way and ensure the future commitment of the International Community to solve challenges elsewhere. Normality in this context includes a sustainable security, reconciliation and a structured society, which guarantees the basic needs of the local population.

The theoretical systemic model (Figure 1) shows three key systems that have an impact on CEOs: the International Community, the Area of Complex Emergency and Peace Forces.

International and national societal environments influence the structure and activities of Peace Forces. During decision-making processes concerning interventions, the Security Council (SC) considers the different options available as a security instrument of the UN, which often consists of military, police and civil components. Military forces play an essential role in complex emergencies, not only for establishing a safe and secure environment, but also in enabling other institutions to fulfil their duties as required. This demands a mutual understanding of each other's capabilities, strengths and weaknesses. So far, experience has shown that cooperation between the different entities in a conflict area is not effective. A clear distinction between roles, tasks and responsibilities does not exist, nor does an integrated body that could enhance cooperation well before a conflict emerges.

A more structured approach is therefore essential to achieve sustainable development for an affected society, based on a return to normality, which is the desired end state. A proper analytical methodology for better understanding of the area of CEO has therefore become a necessity. My proposal is to use multivariate analysis of available indicators in the area of CEO (Figure 3). The methodology consists of systematic collection and analysis of empirical data about various security dimensions. The results of multivariate analysis will help explain the interactions and relations between structures, events and processes.

To achieve desirable effects of CEO in the area of interest it is necessary to coordinate local needs, international capabilities and local capabilities for reconstruction. The need of societal reconstruction could be explained by the »triangle of societal reconstruction« (Figure 2), where societal reconstruction (SR) depends on international capabilities (IC) and local capabilities (LC) or with descriptive formula $SR = IC + LC$. These three elements form the triangle of societal reconstruction in the area of CEO.⁴ With the good knowledge about societal security

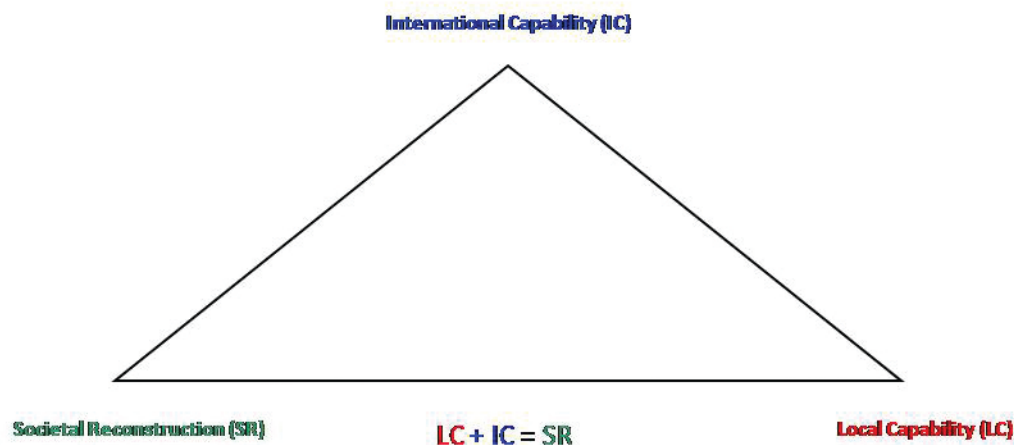


Figure 2. Triangle of Societal Reconstruction

Source: Doyle and Sambanis, 2000, p.45

Despite the global dimensions of contemporary security, the national (state) dimension remains a key factor: the state ensures security to its own citizens with an active national security system. The effectiveness of this state is not only measured by the level of protection of its own fundamental societal values from external and internal threats, but also by the ability to provide economic, political, scientific, technological-technical, social, cultural, ecological and other well-being issues for the population. Above all, the effectiveness of the state is measured by its ability to encourage sustainable development. The fundamental structural elements of a national security system are the operational capabilities of the society that can provide its own security. Contemporary political science has recognized the municipality/ province as the main local governance entity, which is needed to enable the overall societal security for its own population. Holistic societal analysis requires the proper selection of demographic, social, political, economic and environmental

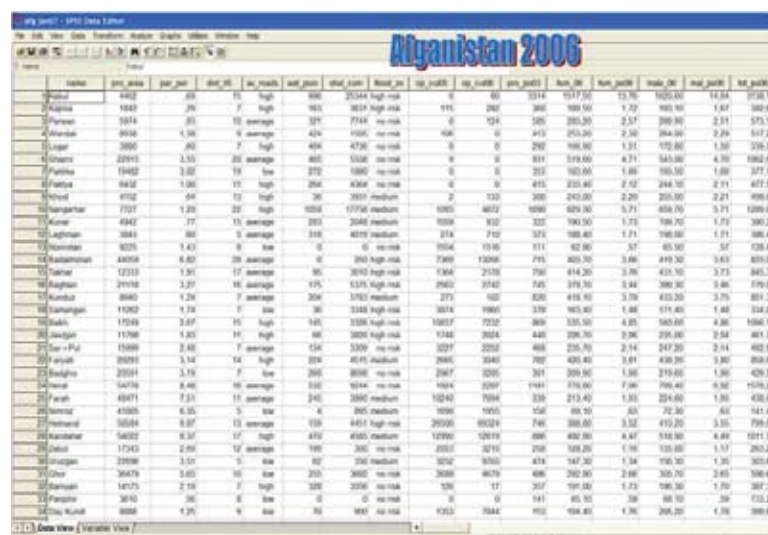
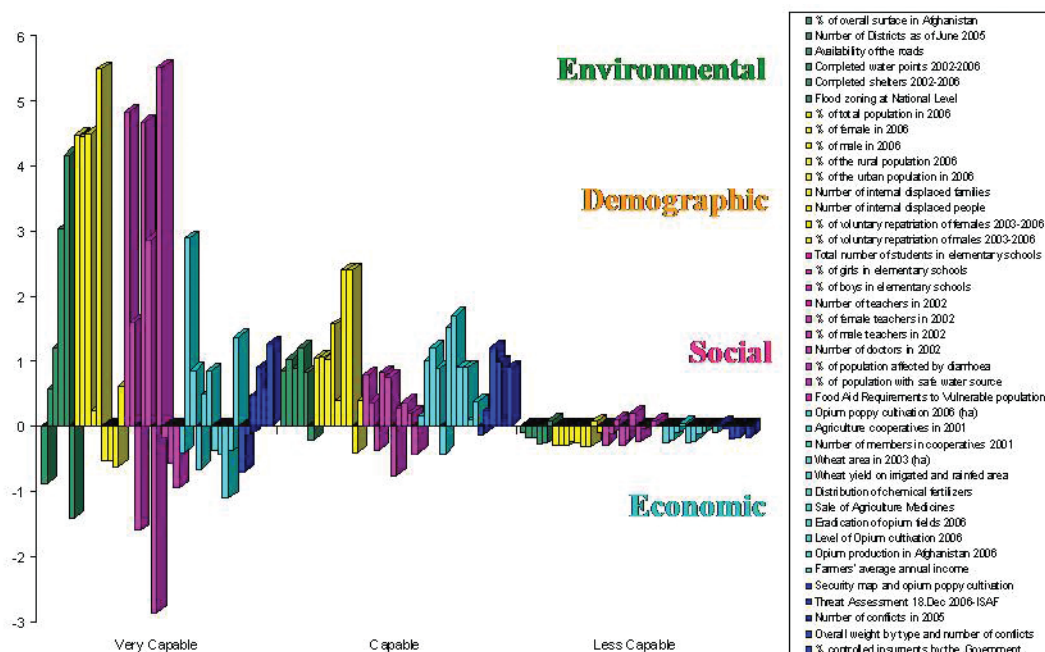


Figure 3. Multivariate Analitical Model of Afghanistan Provinces on SPSS

Case Study Afghanistan

For proper risk and capability assessment of local authorities, it is necessary to determine functions and societal areas for analysis. They could be connected with the object of risks, areas of risks and how the local authorities are dealing with possible threats and developing their own skills for decreasing vulnerabilities. Vulnerability of the local community is in correlation with its capabilities to manage complex security conditions and therefore, also level of survivability for the population. Local authorities with acceptable level of vulnerability could be defined as capable and flexible enough. The most appropriate statistical methods for multivariate analysis of local capability are cluster analysis and factor analysis that allow the researcher to define typology and clusters of municipalities/provinces by groups of variables (graph 1, table 1). I investigated local capabilities for societal reconstruction in 34 provinces of Afghanistan, at the end of 2006. Variables for secondary analysis were collected from open sources on the Internet, data from the Statistical Office of Afghanistan, the Afghanistan Information Management Service, ISAF HQ, United Nations High Commission on Refugees (UNHCR), UN Office



Graph 1. Local Capability for Peace in Afghanistan

on Drugs and Crime and from some other humanitarian organisations. For populating the multivariate analytical model (Figure 3) the province was used as a basic, two-dimensional statistical unit that was defined by the name and size of the area. All 34 provinces were compared by 42 variables structured as follows: 9 demographic, 10 social, 11 economic, 6 political, and 6 environmental. With the help of statistical computer software SPSS 11.0, it was possible to compare similarities between provinces by descriptive and numerical variables. Cluster analysis produced a clear picture of three distinctive groups of provinces (graph 1): one (Kabul) very capable, 4 (Balkh, Herat, Kandahar, Nangarhar) capable and 29 less capable for self sustained societal reconstruction. Kabul had the highest level of measured variables above statistical average, which is twice as good as the second capable group of 4 provinces. 85 % of the provinces in Afghanistan showed levels of societal dimensions below statistical average. They would require additional international capability for sustainable development.

With the cross tabulation of two variables, Province and Local Capability for Peace (table 1), it was obvious which province belongs to which distinctive group. These results can be visualized by the GIS layer (Figure 4). Cross tabulation then allows the researcher to compare Local Capability with the single indicator of societal dimensions in order to produce short-term planning for peace forces activities. For long-term planning the factor analysis (Figure 5) showed two main factors or latent variables Societal Development and Black Economy and Insurgency. Cross tabulation between Local Capability and the two most influenced factors is explained by 43.9 % of variance, thus

Province * Local Capability for peace Crosstabulation

Count		Local Capability for peace			Total
		very capable	less capable	capable	
Province	Badakhshan		1		1
	Badghis		1		1
	Baghlan		1		1
	Balkh			1	1
	Bam yan		1		1
	Day Kundi		1		1
	Farah		1		1
	Faryab		1		1
	G hazni		1		1
	G hor		1		1
	Helm and		1		1
	Herat			1	1
	Ja wzjan		1		1
	Kabul	1			1
	Kandahar			1	1
	Kapisa		1		1
	Khost		1		1
	Kunar		1		1
	Kunduz		1		1
	Lagh man		1		1
	Logar		1		1
	Nangarhar			1	1
	Nim roz		1		1
	Nooristan		1		1
	Paktika		1		1
	Paktya		1		1
	Panjshir		1		1
	Parwan		1		1
	Sam angan		1		1
	Sar-i-Pul		1		1
	Tak har		1		1
	Uruzgan		1		1
	Wardak		1		1
	Zabul		1		1
Total		1	29	4	34

Table 1: Cross Tabulation Province and Local Capability for Peace

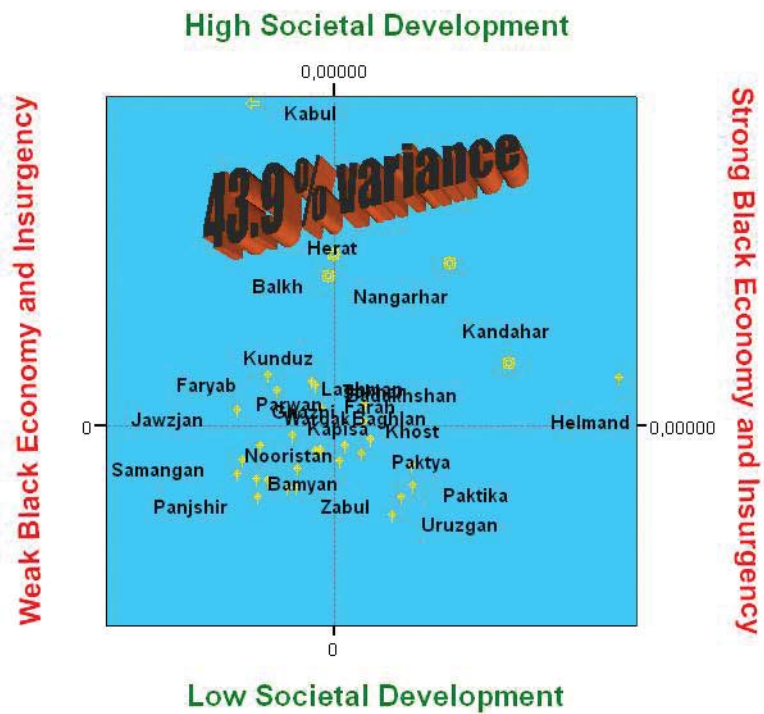
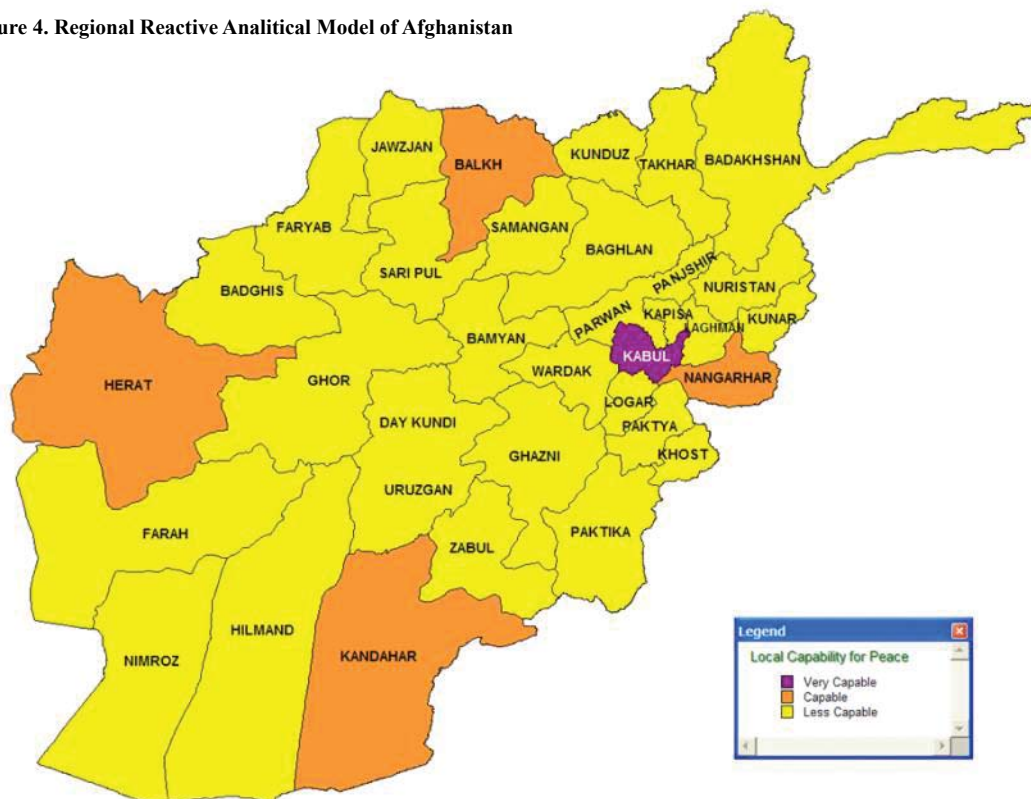


Figure 5. Factor Analysis




Figure 4. Regional Reactive Analytical Model of Afghanistan



showing ways for the International Community to correctly address the complex situation in Afghanistan. Kabul is clearly the most developed province in the country. The intention of the International Community should be to bring the majority of provinces to the top left quadrant with the high Societal Development and weak Black Economy and Insurgency. Recent research of public opinion made by UNODC⁵ in 508 villages in all 34 provinces discovered that in 95,3 % of the cases the main reasons for black economy are linked to the social and economic dimension. Local authorities are not capable to deal with the poverty and severe poverty prevalent throughout the country.

Conclusions

Systematic data collection and multivariate analysis of security dimensions in the area of complex emergency, allows the International Community to carry out a quantitative assessment of short and long-term effects of CEO. This methodology has so far been used on computer assisted exercises (EURASIAN STAR 04, VIKING 05) for analysis of the efficiency of peace forces in a synthetic environment. With the holistic approach to the Local Capability for Peace in the real operational environment, it would be possible to react in a more timely manner and with appropriate international forces and measures to increase the capabilities of the International Community.

In addition, the applied methodology of multivariate analysis, as a contemporary science, can transparently improve living conditions for the affected population and enable sustainable development of the society as a whole. 

Footnotes:

1. Thomas L. Friedman, *The Olive tree: understanding globalization*. New York: Anchor Books a Division of Random House, Inc, 2000, pp. x, xi.
2. Relief Web website, http://www.reliefweb.int/library/documents/ocha_handbook_on.htm Office for the Coordination of Humanitarian Affairs "OCHA Orientation Handbook On Complex Emergencies", 1999.
3. Institute for International Studies website, http://www.brown.edu/Departments/Watson_Institute Cindy Collins and Thomas G. Weiss "An Overview And Assessment Of 1989 - 1996 Peace Operations Publications". Providence: Thomas J. Watson Jr. Brown University, Occasional paper 28, 1997, p.14
4. Doyle, Michael W. and Nicholas Sambanis, *International Peace building: A Theoretical and Quantitative Analysis*. Princeton in Washington: American Political Science Association, Princeton University, The World Bank, 2000, p.9.
5. UNODC (2007) *Afghanistan Opium Winter Rapid Assessment Survey*. Vienna: UN Office on Drugs and Crime. Vienna International Centre, P.O. Box 500, Austria, 2007, p.9.